CLAIMS

1. A four-point contact ball bearing comprising:

an outer member which has a raceway surface on an inner periphery thereof,

an inner member which has a raceway surface on an outer periphery thereof,

plural balls rollably disposed in a row between these outer and inner members, and

a retainer for disposing these plural balls at equal intervals in a circumferential direction thereof, the balls being in two-point contact with each of both raceway surfaces of the outer member and the inner member, wherein

if d designates a diameter of the ball, D_p designates a diameter of a pitch circle of the plural balls disposed between both the raceway surfaces, L_1 designates a distance between centers of adjacent ones of the balls on the pitch circle, r designates a curvature radius of each of grooves serving as the raceway surfaces circumscribing the ball, and α designates a contact angle between the ball and each of the raceway surfaces of the outer and inner races,

d, D_p, L_1, r, and α are set in such a way as to meet the following inequalities, respectively:

$0.011 \leq d/D_p \leq 0.017$,

$1.5 \leq L_1/d \leq 2.1$,

$0.54 \leq r/d \leq 0.59$, and

$15° \leq \alpha \leq 25°$; and

an axial gap S_A between the outer race and the inner race, which are in contact with each other through the ball, is set in such a way as to meet the following inequality:

$-0.050 \text{ mm} \leq S_A \leq 0 \text{ mm}$.

2. A four-point contact ball bearing comprising:

an outer member which has a raceway surface on an inner periphery thereof,

an inner member which has a raceway surface on an outer periphery thereof,

plural balls rollably disposed in a row between these outer and inner members, and

a retainer for disposing these plural balls at equal intervals in a circumferential direction thereof, the balls being in two-point contact with each of both raceway surfaces of the outer member and the inner member, wherein

each of the balls is formed of high-carbon chrome steel; and

a cabonitrided layer having Vickers hardness H_v of 740 to 940 is formed on a surface of each of the balls.

3. A four-point contact ball bearing comprising:

an outer member which has a raceway surface on an inner periphery thereof,

an inner member which has a raceway surface on an outer periphery thereof,

plural balls rollably disposed in a row between these outer and inner members, and

a retainer for disposing these plural balls at equal intervals in a circumferential direction thereof, the balls being in two-point contact with each of both raceway surfaces of the outer member and the inner member, wherein

the balls are made of martensitic stainless steel; and

a cabonitrided layer having Vickers hardness H_v of 1200 to 1500 is formed on a surface of each of the balls.

4. A four-point contact ball bearing comprising:

an outer member which has a raceway surface on an inner periphery thereof,

an inner member which has a raceway surface on an outer periphery thereof,

plural balls rollably disposed in a row between these outer and inner members, and

a retainer for disposing these plural balls at equal intervals in a circumferential direction thereof, the balls being in two-point contact with each of both raceway surfaces

of the outer member and the inner member, wherein

the balls are made of engineering ceramics; and

a surface of each of the balls has Vickers hardness H_v ranging from 1300 to 2700.